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SCHOOL AND SOCIETY

EDITED BY J. McKEEN CATTELL

Volume XXVII SATURDAY, JANUARY 28, 1928 Number 683

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$5.00 A YEAR PUBLISHED WEEKLY 15 CENTS A COPY

THE SCIENCE PRESS

LANCASTER, PA. GARRISON, N. Y.

GRAND CENTRAL TERMINAL, NEW YORK CITY

Entered as second-class matter August 15, 1923, at the Post Office at Lancaster, Pa., under the Act of March 3, 1879

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SCHOOL AND SOCIETY

Volume XXVII SATURDAY, JANUARY 28, 1928 Number 683

SCIENCE AND PRE-PROFESSIONAL COURSES[1]

I FIND two implications in the subject assigned to me. The first is that by "science" is meant natural science—the science of things or of matter and energy. I think that we biologists, chemists, physicists, and so on, sometimes act as though we had preempted the word "science." We lose sight of the social sciences, of mathematical science, of the sciences of language. We lose sight of what science is. We need to come back to John Dewey's definition: "Science is method." We need to read Claud Bernard and to pause before such sentences as this: "Two things must be considered in the experimental [*i.e.*, scientific] method: (1) The art of getting accurate facts by means of rigorous investigation; (2) the art of working them up by means of experimental reasoning, so as to deduce law of the phenomena." We need, in other words, to consider science as a method of thinking—someone defines it as "trained analytical thinking"—a method so new in the history of man and so little understood and practiced by humanity in general, that the world is still full of superstitions, and civilization as we know it may be looked upon by future men as just a step above barbarism.

These thoughts lead me to say that whatever implication as to science in the pre-professional curriculum may have been in the minds of our program makers, there will be more in my mind, as I discuss it, the idea of science as a method of thinking.

The second implication I find in the title assigned to me is that there is such a thing as pre-professional education. Let us grant that there is a certain usefulness in such terms as "general education," "cultural education," "pre-professional education," "professional education," "technical education." But let us decline to accept these phrases as indicative of distinct and separate entities. On the one hand, pre-professional education is somewhat circumscribed general education. On the other hand, pre-professional education is professional education. Our boundaries between the pre-medical and medical courses are arbitrary. I try to impress on our pre-medical students that if they had happened to be in a university in Europe, they would be getting much of their chemistry, physics and biology in the medical school. I remark that medicine is the application of chemistry, physics and biology to certain problems of disease. I tell these students that the anatomy and bacteriology they will get in the medical school are extensions of the biology of the pre-medical course; that physiology is the carrying over of physics and chemistry into the domain of life.

Moreover, if we accept such words as orientation, poise, power and responsibility, as expressive of the aims of general education—Woodrow Wilson gives three: "discipline, orientation, and enlightenment"—I maintain that professional education, in a degree, accomplishes these aims. Professional education is not walled off, turreted and guarded from general education. It is just an adjoining potato patch. We shall go forward, therefore, with the mental reservation that the educational process is one and undivided, and that our terms gen-

[1] Read at the Conference on Science Teaching, Tallageda College, Ala., Nov. 14, 1927.

eral, pre-professional and professional, are about as expressive of natural boundaries in education as the "Northwest quarter of Section 7, Township 4, Range 2 W" is for a prairie landscape.

Accepting then the implications which I suspect were in the minds of the program makers—great people these program makers; they tell us what to talk about and haven't an idea as to what we shall say. How much more helpful if they would tell us what to say and let the audience judge what we talked about! Accepting the implication, I repeat, let us ask what professions presuppose a knowledge of the natural sciences; what professions are founded on the practical application of the natural sciences to human problems. But let us not forget to ask what professions ought equally to presuppose a knowledge of science and ought equally to use the scientific method of thinking.

There is engineering in its various types. It deals with the materials of the world. It applies mathematics, physics and chemistry. These subjects are pre-professional in the sense that they are preliminary to or prerequisite to such branches as dynamo designing, gas engine testing, cement construction, etc. But mathematics, physics and chemistry are professional in engineering education in the sense that they furnish the background of engineering thinking. The engineer must think scientifically or his bridge will fall, his building will collapse, his power plant will run at a loss. Engineering thinks closer to sense realities, probably, than any other profession. I do not think you would find many engineers in Christian science or in theosophy or listening to the personality salesmen or in the audience of Swami Yogananda. If you find an occasional engineer in such company, it will be because his science "failed to take"—was, indeed, for him but a jumble of facts and not a method of thinking.

In mining engineering, I suppose geology, which one might call the physics and chemistry of the earth (just as physiology may be called the physics and chemistry of protoplasm)—geology, I suppose, as well as chemistry and physics, may be called pre-professional for mining. But it is professional also; you can not separate these functions. For sanitary engineering, in addition, you need biology. You build on the same foundation as medicine.

Now, the peculiarity of engineering schools is that, like the medical schools of Europe, they include the sciences in their own curricula. The result is that schools of general education, colleges of arts and science, feel little relation to engineering education. I am mentioning these facts so that you may see that there are pre-engineering sciences as truly—and as falsely—as there are pre-medical sciences. I venture the conjecture that, in the not distant future, at least the higher walks of engineering will be approached through that combination of general education and scientific professional background which we call a pre-professional curriculum.

Next come medicine, dentistry, nursing—three professions founded on biology, chemistry and physics, and having to do with human health and disease. For medicine, the American standard demands two years of college work between the high school and the professional school. We call these two years pre-medical. I have told you, however, that this is only a convenient way of administering the matter, and that in Europe these two years are in the medical school proper—or, perhaps, I should say, are partly in the medical school and partly in the secondary school or gymnasium, which is generally a better institution than our high school. The main thing is that the time and the subject matter are in the educational programs for medicine in all leading countries.

As my own field is medical education,

and as the pre-medical courses are the best standardized and fortified of pre-professional courses, I shall go a little further into them.

In America we have settled on six years, above the high school, as the length of time to prepare a doctor of medicine. The interne year, or seventh year in a hospital, is practice under supervision; but it is also educational. This year is optional in some schools, required in others, but tends to be part of the standard and usual education of physicians in this country. Is this six or seven-year period too short or too long to make a good doctor?

The time is not too long. The responsibilities of the medical man are great. Maturity as well as knowledge is demanded. The medical man has to use a complicated and varied technique, all elements of which take time for the attainment of reasonable skill. The volume of facts to be mastered is immense. A long experience with a large number of patients and disease conditions under supervision is essential before safe independent practice. The remote country district needs and is entitled to as good physicians as the city. All efforts looking to the shortening of the medical course or the education of two types of doctors, should be combatted.

Should the time be lengthened? Should a bachelor's degree be the prerequisite to admission to the medical school? I say, No. You've got to stop formal education at some stage in a man's life. I think that 25 or 26 is old enough for a man to begin to serve and earn and navigate himself in some useful channel of human endeavor. By that time he knows enough to continue his own education. If he doesn't, he wasn't worth educating. At any rate, more schooling will not help him. I am moved by the claim—which probably could and perhaps has been demonstrated objectively—the claim that students lose plasticity and initiative by long tutelage. I am influenced by the argument of race deterioration through social conditions which tend to the late marriage of superior individuals. I am influenced by the already heavy expense of medical service—an expense bound to be increased if the time and expense of medical education are increased. I say neither the pre-medical nor the medical course should be lengthened. I mean the standard minimum. Of course, the gifted and favored individual may go as far as he likes.

Granting that the period of six years for pre-medical and medical training is a compromise of opinion and not founded on experimental data, let us leave it alone until a better period can be determined on as a result of scientific educational investigation in which opinion plays no part. Let us stick to two pre-medical and four medical school years until we *know* something better.

If we agree to this, what shall we say as to the content of the pre-medical curriculum? We know to start with that we shall have to compromise—we always do! Why not? Every life process, every social process, is a compromise. Even the heavenly bodies through the slow millenniums work out compromises or equilibriums among conflicting forces.

We must have a reasonable amount of science in our pre-medical curriculum. We must include chemistry, physics and biology. We need good courses in these sciences because every medical procedure whether of diagnosis, treatment or prognosis is an application of these sciences. Every advance of medicine is made through the methods of these sciences. The life saving and life extension work of preventive medicine and public health, which from the standpoint of race welfare are many times greater in value than that part of medicine devoted to the sick—all this rests on chemistry, physics and biology. The greatest single benefactor of suffering

humanity was not a medical man, but a chemist and biologist, Louis Pasteur. Let us frankly and freely concede to the pre-medical curriculum strong courses in the three sciences on which the doctor's work depends and which form the background of his thinking. Give him mathematics also, ostensibly because he needs it for his physics and chemistry, but really because he needs it for himself. Law educators say that success in mathematics is the best single criterion of success in law. My bet is that a study of correlations would make the same discovery for medicine.

But now comes the squeeze. Shall we give the pre-medical student only mathematics, chemistry, physics and biology? The more lung volume a man has the better. Still, he's got to have some space for his heart, liver, stomach and kidneys, without which his lungs would be useless. Yes, we will agree that there must be something besides science in the pre-medical course.

The medical man must mingle with his fellows and with other people. He must use books. Therefore, he needs language. English, first and plenty. Many of the medical students at Minnesota, in spite of the college English they get, are poor spellers, poor writers, and poor understanders of words—poor readers. The medical man must take a place in society and in government. He should not be wholly ignorant of history and the other social sciences. He is going to deal with people; with minds normal and abnormal. If psychology is of any help in dealing with minds, he ought to have that help.

And now where are you? Sitting nicely on the horns of dilemma. The sharp prick of general culture is in one buttock and the insistent pain of technical demand is in the other.

When I was a boy a man in our town tried to get to Congress by running on both the Greenback and the Democratic tickets. Among the campaign documents of the Republicans was a poem or song, a parody on "Jo Anderson, My Jo." One verse ran as follows:

> "You can not ride two horses, John,
> On different routes to go.
> Your banty legs aren't long enough,
> Oh, John P. Cook, my Jo."

When I get to talking about curricula and of culture *versus* technique, I think of that verse. I try at least to get my horses facing the same way, and I don't fight too hard as to how they shall distribute the burden between them.

But turning to that other burden bearer, the student—there is another thought worth considering. He ought to have some responsibility for the content of his education. Why should we of the faculty insist on making all the mistakes in choosing for him? Why not let him have the fun of making some mistakes himself? This is a subtle argument for electives in the pre-medical curriculum, and it adds a third horn to prick and annoy the highway engineer—I came near saying "highwayman"—who is responsible for educational race tracks.

In the glad consciousness that we are probably wrong, but haven't any real data to go by, let us say two fifths to a half science and mathematics, one fourth or thereabouts, of language, and let the premedic choose about one third or one fourth of his work to suit himself. He can't make a worse botch of it than we do.

Now, don't look to the Minnesota pre-medical course for exemplification of this heresy. Our pre-medical course is of the "turn-not-to-the-right and turn-not-to-the-left" kind. It is pretty rigid. This is due largely to the requirement of a reading knowledge of French or German. It is a good requirement, and we can advance sound reasons for it. Still I am willing now to let it go, and perhaps some day we shall let it go.

Physics, chemistry and biology, then, for pre-medic students—perhaps 25 to 35 semester credits, with laboratory work in each subject. Physics to include mechanics, heat, sound, light, electricity and magnetism, because every one of these topics has a relation to bodily functions and to the apparatus and appliances the doctor will use. Chemistry through organic, with more stress on quantitative than on qualitative work, because the biochemistry of the medical course presupposes organic, and because quantitative methods are more valuable than qualitative as a discipline, as a preparation for research, and as a basis for the technical work of medicine, which tends more and more to exact measurement. A zoology course, or combined zoology and botany course, which gives definite notions of the diversity yet unity of organization and function in organisms, with use of the compound microscope. Not all dead materials. The human not wholly left out. The great generalizations of relationship, energetics, genetics and evolution stressed at all times.

This is, in brief, my picture of biology, chemistry and physics for the pre-medic student. I shall add a few words on teaching further along.

It is a long time since I mentioned dentistry as one of the three healing professions based on biology, chemistry and physics. Now I come back to it.

Dentistry we find just now in a transitional stage. The dentists are moving to make their profession more efficient. That is well. The world needs efficient dentists. At the same time they are vaguely influenced by a desire to make their calling more honorable. They have a feeling that dentistry does not stand in popular opinion or in medical opinion on the plane with medicine. They are proposing the equalization of this differential by more education. With this part of their program I do not find myself in accord. All honest work, in my view, is equally honorable, and honor is a thing inside of man. It is not established by majority vote nor by marks in a book nor by diplomas. It inheres and is not plastered on. Seek education for itself and for yourself, but not to gain some chimerical prestige, nor because you desire 60 semester credits of honorable position among your fellow men.

But all this is beside the question. The fact is that dentistry is going to have a pre-dental year. Some schools already have two pre-dental years. Dentistry is pushing out some of the chemistry from its curriculum and adding other studies to make a pre-dental course. Perhaps dentistry will come to the same pre-professional standard as medicine. The arts college enters a new sphere of activity and takes on a group of pre-dental students. The three sciences named must furnish part of the training for these students.

Nursing has taught its little science within its own curriculum—too little, I judge, to serve as an adequate background for thinking in medical matters; a smattering as a basis for technique. The three year nursing course is long enough—indeed, too long, I judge, for its intellectual content. Beyond urging that the hospital schools improve their teaching of fundamentals and insist in less degree on the service aspects of their curricula, our college people can do little for the ordinary nursing course.

But there is need for a considerable number of nurses with a much better education. These women find places as superintendents, nursing teachers, public health nurses and health teachers in public schools. The chief experiment in the training of this higher group is the five-year course in arts and nursing organized in several universities. Here we may speak of a pre-nursing curriculum. These women need a good knowledge of physics, chemistry and biology. The nurse deals with realities of life

and of death. She needs to walk on a path made solid by substantial science and scientific thinking.

And now I think of some other professions: agriculture with its numerous specialties including veterinary medicine; home economics with its perennial stream of teachers and home makers; I think of forestry and of physical education and of pharmacy. All of them deal with living things and touch back upon chemistry, physics and biology. Do not say these subjects are in their curricula; and they are, therefore, not pre-professional. They are professional or pre-professional, just as you like to look at it. The main thing is they are needed, and they are in the curricula, and they have to be taught.

And business! Business is now professionalized. Economics attempts, with some success, to make itself scientific; but its data are remote from material actualities and not susceptible of immediate verification by the senses. The natural sciences—some or all that I have so constantly harped upon—should, if at all possible, be in the business man's armamentarium. I take it that there is no great enterprise, surely none of an industrial character, but touches upon one or more of these sciences. And most of all, the business man needs to think scientifically.

And law! Human relations again. Biology again. I knew a lawyer who won a murder case because he had studied toxicology. Also what I said about science and scientific thinking for business men applies to lawyers. I have a hunch that some of our recent court decisions which are deplored by forward-looking people were due to the fact that the lawyer has his nose in a book of precedents instead of his eyes focused at close range on the life of a scientific and changing age. Don't let the lawyer hang out his sign until he knows what a laboratory looks like.

And teaching! That is a profession as close as medicine to the life of the people. I deplore the tendency of educational students to specialize on this or that "cultural" subject, this or that social science, with no knowledge of the great universe of things. I feel humiliated when a teacher has no basis for the critical evaluation of the claims of chiropractic *versus* those of medicine. I know that something is wrong with education when I find a teacher denying the realities of sense as a member of a Christian Science Church, or stultifying the intelligence of her pupils and rendering their future difficult, as she is likely to do if she foregathers with Fundamentalists. I say—and I say it as clearly as I can—give the future teacher immunization against superstition and loose thinking by liberal injections of natural science before you pass into her hands the priceless trust of the rising generation.

And the ministry! The apostles of goodness; teachers of right living. Ignorant, largely, of science in a civilization based largely on science! Was such an anomaly ever known before? I venture the opinion that no religion can stand which does not stack up with the facts of the universe, and that present religions are losing their hold on instructed people because they do not stack up with the facts of the universe. I dare the assertion that religion and ethics must have new sanctions which recognize and coincide with natural law. I am certain that the present-day ministry, in spite of godly lives and earnest purpose, can not supply such sanctions nor make such correlations because it lacks knowledge of the facts of things and has no basis for critical scientific thinking.

Here is a letter which came last week to one of our medical graduates engaged in country practice:

Dear Dr. Leonard:

This letter is not intended to interfere with your practise, but to assist, to help. Mrs. Peters suffers from a partial stroke like I did. Here is Knupp's

method that saved my life: No operation, no ice bag, no hypo; those things cause sure death. But the blood must be made to circulate right. Therefore first a wash of the whole body: 2 cups of water, one cup of vinegar, starting with the right foot and leg, then left, then right hand and arm, then left, then back upwards, then belly and last, breast or upper abdomen. This should be repeated every three hours, for instance at 8 o'clock, at 11 o'clock and at 2 o'clock. Three hours after the last washing her right foot should be wrapped in 4 times folded cloth soaked in *hot* vinegar 1 cup and water 2 cups, then at once after that the left foot, then right hand, then left and keep these wrappings on for half an hour, well covered. When wrapping is taken off the right foot first, apply a cold sponge of the foot *quick*, then the other foot and hands the same way. Don't talk much to her. When uncovering her, do it slowly. Keep this up for many days.

This application saved *my* life and many others.

REV. JOHN EDWARDS

This man is ignorant of the simplest laws of physiology. Of course, he did not have a stroke; and of course the patient referred to did not have the same thing that he had. She suffered from trigeminal neuralgia, and the only help known for her was surgery.

This man is ignorant of the laws of logic. He got well from something after a long time. He did not know that most diseases tend to cure themselves. He reasoned that the rigamarole of the so-called "Knupp" method saved his life—as beautiful an example of *post hoc propter hoc* reasoning as chanticleer's crowing to make the sun rise.

This man is superstitious. Witness the mysticism in the sequence of right foot, left foot, right hand, left hand. Observe the charm of numbers in the three hours and the four times folded cloth. I should not be surprised to know that he carries a rabbit's foot and advises planting beans with the moon over the right shoulder!

This man is an uncritical believer. He thinks—yea, he *knows*—that this method saved his life. What else does he know that isn't so?

This man is the adviser and leader in life and death of a group of human beings who surely can not be expected to go above his level of thinking.

The ministry needs science and needs it desperately. And the world needs science-trained and scientific thinking ministers, and this need also is desperate. If the seminaries had spent, in the last generation, half the time on natural science that they spent on exegesis and homiletics, do you think the disgrace of Dayton could have fastened itself on American civilization? I am here to tell you it could not. I am here to say that the human mind is so constituted that it must accept as primary knowledge the results of observation and the deductions therefrom. The old religions did that. Their cosmography was what their wisest saw and heard and felt and tasted and smelled in a mysterious world. So I assert, in this or any other age, the views of religion as to the universe must coincide with what the senses and brains of the wisest determine is the nature of that universe. And what the senses and brains of the wisest determine concerning the universe is science. I believe that the integration of religion and science can be effected. I am certain that such integration is of vital importance and that only a science-trained philosophy can effect it. The ministry does not have such a philosophy and will not have it until its students are thoroughly trained in the basic sciences.

I have run—incompletely, no doubt—the gamut of the professions. I have tried to show that all professional people need the natural sciences—some indispensably as a basis of technique or because their material is an extension of the field, but all just as indispensably as a method of thinking and finding their way about in our science-moulded civilization. Some one says, "Education is the formation of those mental habits which enable the individual to react adequately to real situations." Another says that science in the main created

our civilization. I did not put it quite so strongly. I said "moulded." But whether science created our civilization or is only one of the great moulding factors in it, I hope we will all agree as to its importance and that any one who would react adequately to and in this civilization—that is, any one who is educated—must know science and think scientifically.

I have spoken strongly, and purposely so. But lest you think that I have over-stressed and perhaps distorted the importance of science in all fields of endeavor, let me say that Woodrow Wilson, setting forth the basis for the attainment of "discipline, orientation and enlightenment," under which headings he formulated the objects of a general education, placed first the intensive study of the natural sciences. He said that every educated man needs to know, not the facts of science, but the methods of science—the methods by which nature is made to divulge its secrets. He placed philosophy second, literature third and history and politics fourth. I do not know that the order of arrangement matters much or was intended to indicate relative importance; but the natural sciences bring to the student his facts at first hand and teach him to reason about them. They supply raw sensory material for the thought factory, so to speak. In the other fields the facts are less tangible. Therefore I think Wilson did well to place science first. In any case, remember that Woodrow Wilson, humanist and historian, included the intensive study of natural science as necessary for any educated man.

I have only one or two further thoughts and these concern the methods of teaching science in these pre-professional or pre-life curricula. Since all the professions need the sciences, I take it that it would be an impossible task, even if it were wise, to attempt to teach each group separately. I can not conceive of a school foolhardy enough to operate courses, let us say in chemistry, separately and particularly adapted to engineers, home economics students, pre-medics, pre-dentals, business men and theologians. The weight alone would demand in most cases that such a burden be dropped. Nor do I think such segregation wise. Therefore I think the need is for good, sound but not too detailed courses in each science for its own sake and without much regard as to how it may be related to any one's further education. The wise teacher will indicate, rather, relations to the civilization in which we live. He will show how his science is tied to practical affairs in many directions, and choose his illustrations from the various professional fields.

Secondly, let us all remember that method and principle and law are the essence of science, not mere aggregation of facts. Isolated facts soon disappear from memory. We do not carry many facts away from college. The ordinary and unwarranted stress on facts in college teaching is shown by our inability to pass examinations six months after a course is closed. Of the teaching of many facts like the making of many books, there is no end; and you can use the word "end" either in the sense of limit or in that of purpose. Equally true, either way. What clings in the mind is method and principle and generalization. In gorgeous colors they remain in the sky of life and become the background of thinking and acting long after the sun of college has set.

E. P. LYON
DEAN OF THE MEDICAL SCHOOL
OF THE UNIVERSITY OF MINNESOTA

EDUCATIONAL EVENTS

THE SCHOOLS OF PERSIA

A SPECIAL correspondent of *The Christian Science Monitor* reports from London that prejudice against Christian missionaries has disappeared in Persia, and Muhammadan boys go in large numbers to mission schools. The govern-

ment has established elementary schools in many villages and in almost all large towns. There are to-day in Persia 250 government high schools, 250 private ones—which are inspected by the government and given allowances—and about 100 independent ones. The number of mission schools in the country has also increased: there are about 80 of them to-day. There are two colleges in the country where higher education is given: they are the Teheran College, which was founded by the American Presbyterian Mission, and the Bishop Stuart Memorial College at Ispahan, which was founded by the Church of England Mission. At the end of last year there were 73,998 male students studying in the various schools and colleges of Persia.

The minister of education lays down the syllabus and sends qualified inspectors to see that his orders are carried out. Persian language and literature, arithmetic, geography, Persian and general history of the world, natural science and a European language, either English or French or Russian, are taught in these schools.

Female education had been neglected in Persia for centuries, although Mahommed had taught that it was the duty of parents to educate their children of either sex. Higher class girls learned literature, philosophy and a little arithmetic from their parents, but their less fortunate sisters remained totally ignorant. The first Persian woman who agitated for the education of women was Kouret-ul-Ayn, a Bahai woman, who was, however, done to death by the fanatical mullahs in the middle of the last century. For some half a century after that it looked as if the woman's movement in Persia had disappeared. But it was only quiescent. In 1911, some progressive Persian women who had taken a prominent part in the Persian Revolution of 1906, called a public meeting—it was the first public meeting of women in the country—to discuss the subject of female education. In accordance with one of the resolutions passed at that meeting, they petitioned the government to start girls' schools in the country. But the government did not do anything in the matter until 1919, when a few girls' schools were started. Since then, however, schools for girls have multiplied rapidly. To-day there are no less than 40 girls' schools in Teheran alone. A good many girls also go to the Christian Mission schools, and the schools founded by the Bahais, a sect which combines certain features of the Christian and Moslem religions, with other tenets entirely its own. At the end of 1926 there were 17,192 girls studying in the various schools of Persia.

Riza Shah Pahalvi takes great interest in the moral education of the younger generation. All children in government schools are taught to respect their parents, to love their country and to dislike corrupt officials and foreigners who want to seize or exploit their country. Respect for manual labor, dislike for idleness and love of truth are also taught. Above everything, all children of either sex are taught that it is their duty to work for the uplift of their country.

The Shah is thinking of financing out of his private purse the scheme of a national university which is being considered by the Persian parliament.

SCIENCE AND THE HUMANITIES

AT the annual meeting of the British Science Masters Association, held recently in the Imperial College of Science at South Kensington, Sir Richard Gregory made the presidential address. According to the summary in the London *Times* Sir Richard dealt with some points of contact of natural knowledge with literary subjects included in the school curriculum, and suggested that a wider recognition of them in literary circles would be an educational advantage. The thesis they sought to establish was that teachers of English had almost as much need of lessons in science as teachers of science had of courses in our language and literature. The different points of view were fairly represented in the reports of the two government committees on "Natural Science in Education" and "The Teaching of English in England." The science committee rightly emphasized the value of training in the use of correct English by students of science and technology. "All through the science course," the committee said, "the greatest care should be taken to insist on the accurate use of the English language, and the longer the time given to science the greater becomes the responsibility of the teacher in this matter." Again, "Some literary study, including English, should have the first claim on the

balance of time of all science students." The English committee quoted these acknowledgments with approval, and in other parts of their report referred to the vital importance of English to students of pure and applied science.

With these views they were in complete agreement, but they suggested that indifference to science among teachers of English was more general than neglect of literature by students of science. They were not likely to forget that science and the humanities were the warp and woof of the fabric of modern life any more than they overlooked the human factor in industry, but while these relationships were frequently presented to scientific assemblies, they missed the same friendly gestures to science from their literary colleagues. Men of letters told them that men of science were the only people who had something to say and were unable to say it, and they accepted the rebuke even though they knew the difficulty of making the intricate processes of nature intelligible in the vocabulary of ordinary life. Their retort, however, might very well be that men of letters should be expected in these days to know a little of nature and science and to be able, therefore, to exercise their literary art in displaying the wonder and value of the rare treasures which the argosies of scientific explorers were continually bringing into their havens from uncharted seas. Science did not want a divorce from literature, but closer union with it, and a common understanding of the distinctive qualities by which each could contribute to the fullness of life.

Sufficient evidence did not exist to enable a just comparison to be made of the relative influence of classical and modern training in promoting mental capacity for scientific pursuits. At present, tradition, method, social feeling and professional prospects were all on the side of classical teaching, and the most capable pupils were, therefore, naturally directed to classical studies. Where schools of different types existed, or in different sides of the same school, there was always a tendency to draft the best boys into the classical school or side and to regard those who were not in them as mentally inferior. They were not justified, therefore, in assuming that noteworthy ability on the part of the classical student proved that classical studies provided better mental training than other subjects. Modern literary studies with science might quite possibly be able to afford equally effective training for the same minds.

When teachers of English classics and history understood and interpreted the human contacts of science with their own subjects, there would not be that isolation of scientific instruction which at present existed, and the unity of interest would give power and a new meaning to all cultural effort.

THE SCHOOL OF SERVICE BUILDING OF THE AMERICAN MUSEUM OF NATURAL HISTORY

THE American Museum of Natural History dedicated on the evening of January 17 the School of Service building, a four-story addition to the museum, in which the educational program will be conducted in the future. About 400 educators and public men witnessed the dedication and the unveiling of a memorial statue of William Henry Maxwell, New York City superintendent of schools from 1898 to 1918.

The transfer of the School Service Building, as a gift of the city to the museum, was made by Walter R. Herrick, president of the park board, representing Mayor Walker. In accepting it for the museum, President Henry F. Osborn said that in no other city in the world was there any building comparable to this new school. He said the trustees and officers would do everything they could to give every school boy and school girl in the city the advantages such an institution affords.

The tribute to the late Superintendent Maxwell was the central feature of the evening's program. After a speech of presentation in which he characterized Mr. Maxwell as "a great administrator and inspired teacher of teachers," John Greene, president of the William Henry Maxwell Association, offered the statue to the museum.

"It was erected in part through generous subscriptions of teachers of the public schools," he said, "in part through the devoted labors of the sculptor Charles Eugene Tefft and in large part to the cordial and fruitful cooperation of the officials of the museum."

All the lights were put out, and in the darkness a curtain which had veiled the statue,

standing against the rear wall of the hall, was drawn aside. Then lights were thrown on the statue, revealing an impressive, seated figure of Maxwell of heroic size, cast in green bronze. He is represented sitting in flowing academical robes, on a massive throne, looking out over the hall with a noble, dignified expression. The statue is raised on a solid pedestal about five feet high, placed against the wall.

"Although he did not teach, he had the parts of a teacher," said Dr. John H. Finley, formerly New York Commissioner of Education, in describing the career and life work of Mr. Maxwell. "He knew good teachers when he saw them. He was a terror to others. He was essentially an administrator. He would have made a great governor or railroad president or engineer or president of a trust company.

"As it was, he was head of the greatest trust company in the world with a million parent depositors yearly and with assets, beyond all estimates, in the potentialities of from half a million to a million children. What a godsend it was that the young Scotch-Irish scholar had the fortunes of a half million of such millionaires in trust rather than the millions of dollars of the ordinary money millionaire!"

Other speakers were Dr. John J. Tigert, United States commissioner of education, who spoke on "Museums as National Assets"; Dr. William J. O'Shea, superintendent of New York City schools, who discussed "The Museum and the City Schools," and George H. Sherwood, director of the museum, who gave a lecture with motion pictures on "The American Museum's School Service."

Visitors inspected the new building at the close of the program. It consists of a basement and four floors, 160 feet by 90 feet on the first floor and 55 feet wide on the upper floor. The first floor contains an education hall, reserved for temporary exhibits. The second floor has a reception floor for classes visiting the museum. On the third floor are administrative offices, study rooms, library and activities connected with the extramural work of the museum. The fourth is the production floor, where photographs and negatives are cared for and the photographic studios are located.

THE PROFESSIONAL PREPARATION OF RURAL TEACHERS

THE Department of the Interior announces a national conference on the professional preparation of rural school teachers, consisting of at least two sessions, to be held in Boston on February 25, at the Lenox Hotel, under the direction of the United States Commissioner of Education.

Among those eminent educators who have accepted invitations to address the conference, with the subjects of their addresses, are: W. C. Bagley, Teachers College, Columbia University, "The Extent and Criteria of Curriculum Differentiation for the Preparation of Rural Elementary School Teachers"; Wm. S. Gray, University of Chicago, "Job Analysis as a Basis for Constructive Rural Curricula"; E. L. Hendricks, State Teachers College, Warrensburg, Missouri, "In-service Training for Rural Teachers —Need and Facilities"; E. C. Higbie, Eastern State Normal School, Madison, South Dakota, "The Follow-up Activities of a Teacher Preparing Institution for its Graduates Teaching in Rural Schools"; A. C. Myers, Ohio University, and C. E. Myers, Research Secretary, Pennsylvania State Education Association, "Adjustment of the Supply of and Demand for Qualified Teachers—The State's Problem"; Ned Dearborn (representing the commissioner of education, New York), "Legislation and State Regulations needed to Guarantee a Sufficient Number of Adequately Prepared Young People for Rural School Positions"; Shelton Phelps, George Peabody College for Teachers, "Attacking the Problem of Training Teachers for Rural Communities in Two, Three and Four-year Standard Courses." Presiding officers of the sessions will be selected from among the presidents and directors of rural education in certain teachers colleges which have made special contributions in the particular field of work under discussion.

The function of supplying and maintaining an adequate staff of professionally prepared teachers on a state-wide scale for the rural elementary schools offers problems of special difficulty and importance. In many states these problems have proved of such magnitude owing to inadequate facilities in state institutions, the low salary scale and inadequacy of certification

laws that little progress has been made toward their satisfactory solution. A recent study made in the Bureau of Education indicates a gap of a thousand dollars between the average salary paid to rural and to city teachers. That there is a corresponding gap between the respective qualifications of these two groups is indicated by special studies recently made in several states. How to bridge this gap, thereby giving a square deal in teaching service to country children, is a problem of the utmost importance for educators in the United States to consider. It is the purpose of this conference to contribute materially to its solution.

THE HEALTH COMMISSIONER OF CHICAGO AND MAYOR THOMPSON

As an aftermath of the dismissal of Dr. Herman N. Bundesen, former health commissioner of Chicago, and his replacement by Mayor Thompson's personal physician, a surgeon with no public health training, a public statement has been issued by the most prominent figures in public health work in the United States, protesting against the influence of politics affecting the public health and welfare of the people at large.

Not only has Dr. Bundesen been eliminated from Chicago's Health Department, but also his principal assistants, J. C. Geiger, M.D., deputy health commissioner, Arthur E. Gorman, chief sanitary engineer, and I. S. Falk, Ph.D., director of surveys, who, like their chief, are eminent sanitarians.

The statement issued, bearing the signatures of eminent persons, including two university presidents, states:

> The undersigned workers in the field of American public health desire to express an emphatic protest against the action of the Mayor of the City of Chicago in replacing Dr. Herman N. Bundesen, the health officer of that city, by a physician who, whatever his personal standing, is without apparent qualifications or experience to fit himself for the discharge of the serious duties of the office in question.
>
> Permanence of tenure for competent health officials is an absolutely essential factor in the protection of the public against preventable disease; and the case in question seems particularly flagrant in view of the extraordinary record of Dr. Bundesen, whose brilliant services have aroused nation-wide admiration. Sacrifice of the lives of citizens of Chicago to political exploitation and personal whims is more than a local matter, since unsanitary conditions in one community may react upon an entire continent.
>
> The action of the Mayor of Chicago strikes a blow at the most fundamental principles of good government. It should meet with prompt and vigorous rebuke from all people of Chicago who care for the reputation of their city and it should stimulate citizens everywhere to see that city charters are amended so as to make such interference with good health administration impossible in their own communities.

A. C. Abbott, M.D., director, School of Hygiene and Public Health, University of Pennsylvania.

Charles V. Chapin, M.D., superintendent of health, Providence, R. I.

S. J. Crumbine, M.D., general executive, American Child Health Association, New York City.

Haven Emerson, M.D., professor of public health administration, Institute of Public Health, College of Physicians and Surgeons, Columbia University.

Livingston Farrand, M.D., president, Cornell University.

Allen W. Freeman, M.D., professor of public health administration, the Johns Hopkins University.

Mary S. Gardner, R.N., director, Providence District Nursing Association, Providence.

Louis I. Harris, M.D., commissioner of health, New York City.

William C. Hassler, M.D., health officer, San Francisco.

William H. Howell, M.D., director, School of Hygiene and Public Health, the Johns Hopkins University.

Guy L. Kiefer, M.D., state commissioner of health, Lansing, Mich.

Mrs. Walter McNab Miller, chairman public welfare, General Federation of Women's Clubs; president, Association of Women for Public Health; chairman on health, National Council of Women.

John E. Monger, M.D., director of health, State of Ohio, Columbus.

Matthias Nicoll, Jr., M.D., state commissioner of health, Albany.

William H. Park, M.D., director, Bureau of Laboratories, Department of Health, New York City.

J. L. Pomeroy, M.D., health officer, Los Angeles County,

Samuel C. Prescott, S.B., head, department of

biology and public health, Massachusetts Institute of Technology.

Henry F. Vaughan, Dr.P.H., commissioner of health, Detroit.

George E. Vincent, Ph.D., president, Rockefeller Foundation.

Lillian D. Wald, R.N., president and head resident, Henry Street Settlement, New York City.

S. W. Welch, M.D., state health officer, Montgomery, Ala.

Ray Lyman Wilbur, M.D., president, Stanford University.

Frankwood E. Williams, M.D., medical director, National Committee for Mental Hygiene, New York City.

C.-E. A. Winslow, Dr.P.H., professor of public health, Yale University.

THE TRIAL OF SUPERINTENDENT McANDREW

THE Chicago correspondent of The New York *Times* telegraphs that in a statement issued on January 23 the Public School Emergency Committee charged that the trial of William McAndrew was an "unblushing and brutal" plan of the "spoils system to lay hands on the public schools."

The statement was given out in expectation of the "dismissal" of the Superintendent of Schools whose contract already has expired. The Committee of Citizens that issued it came into being in the latter stages of the McAndrew trial. The statement read in part:

> The curtain is about to rise on the last scene of the mock trial of Superintendent McAndrew. After dragging out the proceedings until his term is over, the superintendent will be dismissed. What makes this affair a farce is the fact that the majority of the Board of Education were pledged to dismiss McAndrew before they were appointed.
>
> The sorry proceedings now coming to a close in the dismissal of a competent official by a packed board constitute the saddest page in the history of the Chicago schools and in fact of all American education. Never in so unblushing and brutal a fashion has the spoils system dared to lay its hands upon our public schools. Never have there been proceedings so hypocritical and insincere. Never has patriotism been so brazenly invoked to cover up the designs of a plundering crew of political pirates.
>
> When the president of the board, already pledged, and five other members of the board already pledged and the attorney of the board already pledged finally summon courage to vote on the charges they agreed upon months ago, they will lynch the superintendent and will set up a hilarious cry of triumph.
>
> But the public will know that this has been a roaring farce; that every elementary principle of justice has been violated; that the most shamelessly unfair methods have been employed. All over America school teachers will know that a great crime has been committed against the educational profession; and citizens everywhere will know that dirty politics is behind the mask of patriotism.
>
> Fundamental Americanism is supposed to guarantee a speedy trial on clear charges by a free and impartial court. In the McAndrew case the school board, in the name of Americanism, exhibits a puppet "judge" presiding over a packed "court," whose decision has been announced in advance, denying to the accused elementary rights that are the common heritage of all American citizens. A crew of political buccaneers, lost to all sense of sportsmanship and fair play, has made a bonfire of the bill of rights while hoisting aloft the picture of George Washington.

THE CHARGES AGAINST MRS. FLORENCE E. S. KNAPP

THE report of Commissioner Le Boeuf to Governor Smith contains serious charges against Mrs. Knapp, formerly secretary of state and now dean of the College of Home Economics of Syracuse University. It says:

> Your commissioner has been forced, reluctantly, to the conclusion that Mrs. Knapp's administration of the census funds can not be explained away on the ground of incompetence, unfamiliarity with public office or the result of bad advice.
>
> The improper actions are too personal to her, too frequent and have too much of the appearance of the execution of a deliberate scheme of wrongdoing to be thus lightly excused.
>
> The story which the records tell against her is so complete in itself that your commissioner can conceive of no justifiable explanation. It is not in any sense the mere irregular cutting of corners in departmental procedure by an inexperienced person. The irregular procedure coincided with far graver acts.
>
> The giving away of state funds to persons who she knew were not entitled to such payments—persons frequently close to herself—on the scale practiced by her is not to be lightly regarded. But when those funds are traced through devious routes into her own possession and used by her for the

payment of her own bills, there is only one recommendation your commissioner can make.

To tolerate such acts, because of the consideration one may feel for Mrs. Knapp as the first elected state official of her sex, would be repugnant to all principles of justice.

It therefore is recommended that the documents, records and testimony on which this report is based be forwarded to the district attorney of this county with instructions that he bring the same to the attention of the next regular Grand Jury of Albany County, with particular reference to the provisions of the penal law dealing with forgery, the making of false audits and certifications, the illegal removal of state records and grand larceny.

The report recommends that a civil action should be brought against Mrs. Knapp for restitution of illegally appropriated census funds only "if for any reason criminal action should not result in her conviction for an offense, where the fine imposed instead of or in addition to a prison sentence could be used as a means of repaying the state." It recommends that owing to the cost no civil suits be brought against the score of persons, including Mrs. Knapp's relatives, who received census funds illegally. One of these is Miss Clara Belle Knapp, professor of home economics at Middlebury College.

THE MILDRED WIMPFHEIMER NURSERY SCHOOL

A NURSERY school conference will be held at Vassar College on February 6 and 7 to celebrate the opening of the Mildred Wimpfheimer Nursery School.

The program is as follows:

MONDAY, FEBRUARY 6, 1928

9:00–10:00—Visit to the Nursery School.

10:00–12:00—Addresses:

"Mental Hygiene and the Nursery School," Dr. Smiley Blanton, Vassar College.

"Nursery School as a Factor in Child Development," Dr. Lovisa C. Wagoner, Vassar College.

"Training for Posture in the Nursery School," Dr. Fritz B. Talbot, Harvard Medical School.

Monday Afternoon

2:45—"Nursery School and Research in Constitutional Make-up of Children," Dr. R. C. Scammon, University of Minnesota.

"Nursery School and Child Guidance Clinics," Dr. Lawson G. Lowery, Institute for Child Guidance, New York City.

"Nursery School and Parental Education," Dr. John Anderson, University of Minnesota.

Monday Evening

"The Nursery School and Psychological Research," Dr. Kurt Koffka, Smith College.

TUESDAY, FEBRUARY 7, 1928

9:00–10:00—Visit to the Nursery School.

10:00–12:00—Addresses:

"The Study of Speech in the Nursery School," Margaret Grey Blanton, Vassar College.

"The Nursery School as a Place for the Study of Nutrition for Children," Dr. Ruth Wheeler, Vassar College.

"Planning of the Diet in the Nursery School," Miss Mary Mumford, Vassar College.

Tuesday Afternoon

2:45—"Studies in the Constitutional Make-up of Nursery School Children," Dr. George Draper, College of Physicians and Surgeons, Columbia University.

"The Nursery School and Educational Theory," Dr. Buford Johnson, the Johns Hopkins University.

Tuesday Evening

"Nursery School and Child Development," Dr. R. S. Woodworth, Columbia University.

THE OHIO STATE EDUCATIONAL CONFERENCE

THIRTY-TWO out-of-state speakers, most of them with national reputations, will appear on the programs of the Eighth Annual Ohio State Educational Conference, April 12, 13 and 14, 1928.

Speakers for the general programs are Clarence C. Little, president of the University of Michigan; Glenn Frank, president of the University of Wisconsin; W. O. Thompson, president emeritus of the Ohio State University; J. Paul Goode, professor of geography, University of Chicago, and O. T. Corson, former director of education for the State of Ohio.

Out-of-state speakers at the twenty-nine sectional meetings during the three days include:

John J. Maddox, superintendent of the city schools, St. Louis (City Superintendents' Section); William McAndrew, editor of *The Educational Review* (City Superintendents' Section); Herman Adler, director of the Institute for Juvenile Research, Chicago (Clinical Psychology and Special Education); R. L. Lyman, University of Chicago (English); John R. Clark, New York University (Mathematics); Charles Farnsworth, Teachers College, Columbia University (Music); V. A. C. Henmon, University of Wisconsin (Educational and Intelligence Tests; Teacher Training); E. G. Blackstone, University of Iowa (Commercial Education); L. C. Marshall, University of Chicago (History); A. T. Walker, University of Kansas (Latin); Lee Driver, State Department of Pennsylvania (County Superintendents; Village and Consolidated School Superintendents); Alphonse Iannelli, Art Institute, Chicago (Art); F. B. Knight, University of Iowa (Educational and Intelligence Tests); Lois Hayden Meek, Educational Secretary of the American Association of University Women (Elementary Teachers); J. Paul Goode, University of Chicago (Geography); Catherine Blunt, University of Chicago (Home Economics); Grant M. Hyde, University of Wisconsin (Journalism); P. H. Hagboldt, University of Chicago (Modern Language); Francis G. Blair, State Superintendent of Public Instruction, Illinois, and former president of the National Education Association (Parent-Teacher Association); George F. Womrath, Business Superintendent of Schools, Minneapolis, Minn. (School Business Officials); A. C. Kinsey, Indiana University (Biological Science); Robert W. Selvidge, University of Missouri (Industrial and Vocational Education); Harvey Lemon, University of Chicago (Non-Biological Science); W. T. Bovie, Northwestern Medical School (Joint Biological and Non-Biological Science); Eata Sherman, Detroit, Mich. (Physical Education); Jessie Burrall, Stephens College, Columbia, Mo. (Religious Education); A. H. Bell, Gary, Ind. (School Business Officials); Mildred Pope, Girard College, Pennsylvania (School Librarians); Henry H. Howett, Washington, D. C. (Special Education).

In addition, approximately seventy-five prominent Ohio school teachers and executives will appear on various programs.

EDUCATIONAL NOTES AND NEWS

DR. FREDERICK MAURICE HUNTER, since 1917 superintendent of the schools of Oakland, California, has been elected chancellor of the University of Denver, where he will succeed Dr. Heber Harper, who tendered his resignation several months ago to study in the east. Since then Vice-chancellor Wilbur D. Engle has been acting head of the institution. Dr. Hunter was president of the National Education Association in 1920. He will take up his new work on July 1.

DR. SPRIGHT DOWELL, president of the Alabama Polytechnic Institute, has been elected president of Mercer University at Macon, Georgia.

THE REVEREND WILLIAM M. MAGEE, S.J., has been elected president of Marquette University, Milwaukee.

THE REVEREND SHERWOOD FOX, dean of the University of Western Ontario, has been elected to the presidency.

IN honor of the ninety-first birthday of Dr. William W. Keen, of Philadelphia, on January 19 a Keen chair of surgery has been established by the Woman's Medical College.

A TESTIMONIAL dinner in honor of Dr. Frederick C. Hicks, who is retiring from the presidency of the University of Cincinnati, was given on January 16, the mayor of the city acting as toastmaster.

DR. RUFUS VON KLEINSMID, president of the University of Southern California, at a recent luncheon received a diploma from the French Academy and was decorated by order of the French government with the academic palms. The medal was awarded to Dr. von KleinSmid for his "sympathetic support of the extension of the French language in the curriculum of the University of Southern California."

JULIUS ROSENWALD, chairman of the board of directors of Sears, Roebuck and Company, Chicago, and Dr. James Hardy Dillard, of Charlottesville, Va., have received awards from the Harmon Foundation for "distinctive work in race relations." Dr. Dillard, active in increasing educational facilities for Negroes in the south, received $500 and a gold medal. Mr. Rosenwald was awarded a gold medal for his financial aid to organizations providing better school facilities for Negro children.

THE Luther Halsey Gulick award for distinguished service in his field of study was bestowed on Professor Clark W. Hetherington, of

the department of physical education at New York University, at a recent dinner of the Physical Education Society of New York and vicinity at the Aldine Club. Professor Hetherington was the guest of honor and was invested with the award after speeches by Dr. George J. Fisher, Dr. William Snow, George W. Ehler, H. S. Braucher, Jay B. Nash, Dean John W. Withers and Helen McKinstry.

DR. C. GRANT ROBERTSON, vice-chancellor and principal of Birmingham University, has been knighted.

DR. BASHFORD DEAN, professor of zoology in Columbia University and professor of fine arts in New York University, has resigned his curatorship of the department of arms and armor of the Metropolitan Museum of Art and has been elected a trustee to fill the vacancy caused by the death of Harry Payne Whitney.

PROFESSOR HANS NAUMANN, of the University of Frankfort, has been appointed Carl Schurz professor in the University of Wisconsin to hold office the first semester of 1928–29. Professor Naumann will lecture on German literature.

LARS G. ROMELL, of the Swedish Forest Experiment Station at Stockholm, has been appointed to the Charles Lathrop Pack research professorship in forest soils at Cornell University, and will take up the work about April 1. The establishment of this professorship, the first of its kind in an American university, has been made possible by the recently announced endowment of $130,000 for the chair, together with important additional gifts for its operating funds, from the Charles Lathrop Pack Forestry Trust.

R. S. HILLYER has been appointed assistant professor of English and tutor in the division of modern languages at Harvard University.

A. C. HARDY has been appointed the first professor of zoology at University College, Hull, England. Mr. Hardy acted as zoologist to the recent expedition to the Antarctic in the *Discovery*.

PROFESSOR W. M. LINDSAY, professor of humanity in the University of St. Andrews and formerly official fellow and classical tutor of the college, has been elected to an honorary fellowship at Jesus College, Oxford.

EZRA L. GILLIS, registrar and secretary of the senate of the University of Kentucky at Lexington, Kentucky, has been appointed specialist in the Land-Grant College Survey being conducted by the Bureau of Education, as announced at the Department of the Interior. Mr. Gillis will be assigned to the task of preparing a questionnaire dealing with the organization, duties, relations and systems used in registrars' offices in the land-grant colleges. Cooperation and coordination of the registrar's offices and the business offices of the colleges will also be subjects of inquiry in this connection as well as the method of collecting information on enrollments, grades, attendance, class size, admission, advanced standing and transfer of students in the colleges.

DR. FREDERICK HORRIDGE, who was formerly chairman of the department of vocational education at the Ohio State University, is now directing vocational education in the public schools of Long Beach, California.

MISS ELLEN FAULKNER, now assistant to the dean of Bryn Mawr College, and director of halls in the college, has been appointed principal of the girls' school of the Milton Academy, succeeding Miss Sarah S. Goodwin, whose resignation is to take effect in June.

DR. EDWARD BLANCHARD HODGE, of Philadelphia, was elected a charter trustee of Princeton University with life tenure at the winter meeting of the Board of Trustees. Dr. Hodge graduated from Princeton in 1896.

OTTO TREMONT BANNARD, of New York City, has announced that he will not be a candidate for reelection to the Yale Corporation. Mr. Bannard is one of the oldest members of the Corporation in term of service. He was graduated in 1876. He was chairman of the $20,000,000 endowment fund campaign, which has just been concluded with the raising of about $21,000,000.

BISHOP THEODORE S. HENDERSON, of the Cincinnati area of the Methodist Episcopal Church, has accepted the directorship of the campaign among Methodist churches in Ohio to raise one million dollars for Ohio Wesleyan University.

REXFORD MITCHEL, a graduate of Lawrence College, will return to the college next fall as alumni secretary and assistant to President Henry M. Wriston.

AT the annual meeting of the University of Wisconsin Retirement Association, Dean Harry L. Russell, of the college of agriculture, was elected to fill the position on the board left vacant through the resignation of F. B. Morrison. W. H. Lighty, director of extension teaching, was chosen successor to Professor L. R. Jones and M. H. Ingraham, of the mathematics department, succeeds himself for a three-year term.

AT the recent meeting of the Idaho State Teachers Association, C. W. Tenney, president of Gooding College, was elected chairman of the department of higher education for the coming year. Other institutions in this organization are the University of Idaho at Moscow, the College of Idaho at Caldwell, the Northwest Nazarene College at Nampa, Southern Branch at Pocatello, Ricks Normal College at Rexburg and the State Normals at Albion and Rexburg.

THE New York City board of education has granted to Dr. John L. Tildsley, district superintendent of schools, a three-months' leave of absence with pay. Dr. Tildsley sailed for the Mediterranean, Egypt and the Holy Land on January 6. He and Mrs. Tildsley are traveling with Mr. and Mrs. Thomas W. Lamont, who are personal friends.

DR. SAMUEL F. KERFOOT, formerly president of Hamline University, has been touring Sicily and southern Italy since his retirement. After a month in Florence and a leisurely tour in northern Italy, he will remain in Paris until May, when he will go to the British Isles for three months or more. His address in Florence, Paris and London will be in care of the American Express Company.

LEAVE of absence from Princeton University for the next academic year was granted to Professor Frank A. Fetter, of the economics department. Dr. Fetter has been asked by Pomona College, California, to assist it in establishing a man's college.

PRESIDENT MARION EDWARDS PARK, of Bryn Mawr College, and the academic committee of the Bryn Mawr Alumnae Association visited Princeton University on January 20 to study the new plan of study which was instituted there in 1923. Professor Luther P. Eisenhart, dean of the Princeton faculty, explained Princeton's program to the group, which included, beside President Park, the president of the Bryn Mawr Alumnae Association, Mrs. Alfred B. McClay, of New York City.

CHARLES H. PHELPS, JR., president of the University Travel Association, which sponsored the pioneer university afloat on board the *Ryndam* in 1926, and recently announced the second cruise, to sail September 19, 1928, reports that Dr. Edwin M. Wilson, headmaster of the Haverford School, Haverford, Pennsylvania, has accepted the appointment as headmaster of the preparatory department of the 1928 College World Cruise.

DR. M. I. PUPIN, professor of electro-chemistry in New York University, will be the commencement speaker at Middlebury College on June 18.

DR. AUGUSTUS O. THOMAS, president of the World Federation of Education Associations, will be the principal speaker at a dinner and "graduates symposium" held under the auspices of the Boston University Women Graduates Club in the Copley-Plaza Hotel on February 6. Among the guests of honor will be Governor Alvan T. Fuller and Mrs. Fuller, President Daniel L. Marsh, of Boston University and Mrs. Marsh, Mrs. A. Lawrence Lowell, President Ellen Fitz Pendleton, of Wellesley College, and President Ada Louise Comstock, of Radcliffe College.

PROFESSOR W. L. BRAGG, Langworthy professor of physics at the University of Manchester, son of Sir William Bragg, both known for their contributions to science in the field of X-rays and crystal structure, will give in February a series of lectures on "Crystal Structure" at the Massachusetts Institute of Technology.

DR. TALCOTT WILLIAMS, first director of the school of journalism of Columbia University and since 1919 emeritus professor of journalism, died on January 23 in his seventy-ninth year. Before becoming director of the school of jour-

nalism in 1912, Dr. Williams had been actively engaged in newspaper work.

DR. ARCHIBALD CARY COOLIDGE, professor of history at Harvard University and formerly in the American diplomatic service, died on January 15. He was sixty-one years old.

FREDERICK WELLS WILLIAMS, professor emeritus of the Oriental department at Yale University, died on January 3.

THE death is announced of the Reverend Dr. J. H. Farmer, dean of McMaster University, Toronto.

DR. PERCY MEREDITH HUGHES, superintendent of the Syracuse public school system for the last seventeen years, died on January 16 at the age of sixty-three years.

MISS MARY E. GARRY, a teacher in the public schools of Jersey City for forty-three years, died on January 14. The flags of the City Hall of Jersey City and of the public schools were placed at half-staff to honor her memory.

PUBLIC legacies of $460,000 are contained in the will of the late Archibald Cary Coolidge, professor of history at Harvard University and director of the Widener Library. The sum of $150,000 is given to Harvard College to hold forever in trust as a fund under the name of "Coolidge Professorship," the income to be devoted to the establishment and maintenance of a professorship in modern European or Asiatic history in Harvard University. Another fund of $30,000 is given to Harvard, the income to be awarded annually to a student of history in the Graduate School of Arts and Sciences. The Museum of Fine Arts is given $50,000 to be devoted to the purchase of some work or works of art produced before the year 1800. The sum of $25,000 is given to the Massachusetts General Hospital for general uses. Radcliffe College is to receive $5,000 for the purchase of books for its library. After private bequests amounting to $630,000 have been made, the rest and residue of the estate is given to Harvard College, the income to be used for the purchase of books. If the residue exceeds $200,000, only that amount shall be held in trust and the balance shall be used either for the purchase of books or for administration purposes of the Harvard College Library.

A. P. GIANNINI, president of the Bancitaly Corporation and founder of the Bank of Italy, the fourth largest banking institution in America, has offered the bulk of his personal fortune to the University of California for research. The offer amounts to $1,500,000.

FOR the reason that Philadelphia's new Museum of Art will be a great educational factor for the service of the entire citizenship, the General Education Board has offered to contribute toward its completion $350,000, conditioned upon the raising of $1,000,000 by popular subscriptions.

ANNOUNCEMENT is made by President Ernest J. Jaqua, of Scripps College, of a gift of $250,000 for the building and furnishing of a recitation hall. The donor is a member of the board of trustees, who wishes for the present to remain anonymous.

MAX EPSTEIN, who established the Max Epstein Clinic in the University of Chicago Clinics, the new medical center on the Midway, has given the university $100,000 to be subscribed to the building fund of the Chicago Lying-in Hospital. Mr. Epstein's contribution is to be used to establish in the Lying-in Hospital building, to be erected on the medical quadrangles, an outpatient department, which shall be operated as part of the Max Epstein Clinic.

F. J. LEWIS, manufacturer of Chicago, has given $100,000 to found the Holy Name Technical School for neglected Catholic boys. Mr. Lewis has also offered to the South Park board $100,000 to construct fresh-air baby sanitariums in the park on the shore of Lake Michigan.

A BEQUEST of $50,000 to Brown University is contained in the will of Charles L. Baker, of Fall River. It is stipulated that $40,000 shall be used by the university as a memorial to the class of 1884, of which Mr. Baker was a member, and $10,000 for work in political and social sciences in memory of his late law partner, Edward A. Thurston, who was graduated from Brown in 1893.

FORDHAM UNIVERSITY announces that a new faculty building will be erected on the campus. It is expected that the building will be completed in September. It will have five stories and a basement, with a central pavilion of six

stories. There will be fifty-five private rooms with suites for the rector, bishop and minister. A chapel will be built on the first floor. A large porch will surround the first floor, facing the university tennis courts.

DISCUSSION

CORRECTION OF VISUAL DEFECTS AND IMPROVEMENT IN COLLEGE STUDIES

RISLEY, Dresslar, Mann, Ayres and others have attempted to determine the amount of retardation in the elementary school that is caused by defective vision. All these investigators agree that poor eyesight becomes a more serious handicap to the student the longer he remains in school. Myopia or near-sightedness occurs in about 2.54 per cent. of infants. The prevalence of myopia, however, increases throughout the grades of the elementary school and exists in more than fifty per cent. of college students. In normal schools, where one would expect the prospective teachers to appreciate the importance of vision, about one half of the forty per cent. with defective vision are not fitted with glasses.[1] Students are slow to remedy the visual defect unless they are compelled to do so by the school authorities.

Statistics relative to the extent and degree of eye defects are so variable, questionable and contradictory that it seems that the entire subject needs to be re-investigated. At the College of the City of New York complete scholastic records and the results of reliable eye examinations (made by objective methods) are obtainable. For this reason, the students in this institution were selected for this investigation. Incoming students are required to report for a complete physical examination and permanent records are kept of the findings. Students with defective eyes are compelled to have the eyes treated immediately. The high school record and the number of hours per week devoted to gainful employment is also kept on file. With this data and the college record an intelligent approach can be made to the problem.

In this study no attempt is made to correlate visual efficiency and academic work. This would be futile because the quality of academic work depends more upon intelligence than any other factor. Good eyesight does not necessarily bring high scholarship. In fact, records at the college show that the students with highest standing often have poor eyes. The problem, however, does concern the effect of the correction of eye defects upon subsequent school work. Is there a sufficient increase in academic efficiency to justify the policy of compelling students to purchase glasses in cases of eyesight deficiency?

The records of the department of hygiene were searched so as to obtain the names of one hundred students (selected alphabetically) who entered college handicapped with eye defects. Another group of students who entered college with normal eyes was selected. The high school records of all the students of both groups were recorded. Students from the second group were paired, respectively, with those of the first group on the basis of high school records of equal accomplishment. In pairing the students care was taken to select students coming from the same high school, securing the same average grades and entering college during the same semester. Various high schools have different standards of grading, *e.g.*, a standing of seventy per cent. in English in one school is only worth sixty in another. By pairing students from the same high school this discrepancy was avoided in this study. The closest possible equation of conditions was thus obtained, the only difference being that one student had normal eyes while the other was handicapped with defective eyes which were fitted with glasses according to the requirements of the college authorities. During the first two years in college both students pursued the same prescribed courses. Those who have attempted to predict college success on the basis of high-school attainments have obtained a coefficient of correlation between the two of about .50. If only the work of the first two years of college were considered in these computations the coefficient would be much higher. Thus the assumption that both groups of students would perform on the average equally well in college is probably sound.

In the evaluation of college performance both quality and quantity were considered. High

[1] Eyesight Conservation Survey. 1925. Page 49.

grade work was given a premium and poor work partial credit. Adjustments were the same as those employed by the college authorities. Finally, the total number of credits was computed for each group and an average taken. The ametrope group or those who were originally handicapped in vision excelled by having an average of 1.29 credits more than those with normal eyesight. The result is significant. It represents the difference in scholarship attributable to the removal of the eye defect.

Another observation worth noting is that thirty-one of the one hundred ametropes selected at random left college after one semester's or less of attendance. The results of neglected eyesight defects can not always be corrected immediately. Weeks, months or even years are required before some of the cases can accept the optical correction that will make the eyes see normally again. It is quite possible that the students who left college could not make the proper adjustment soon enough.

A study was also made to determine whether the ametropic cases came with equal frequency from all the high schools of the city. The freshman class consists of students from eleven different schools of this city. Of these, two high schools (all statistical factors taken into consideration) are responsible for sixty-seven per cent. of the ametropes.

A positive and definite quantitative relationship has been established between the improvement of eyesight and academic standing in college. This was obtained by utilizing a number of random cases of ametropia, not by selecting the cases of marked visual defect alone. Any slight visual defect was sufficient to place a student among the ametropes. No doubt, if the serious defects alone were considered, an even more pronounced improvement in scholarship would result upon the removal of the difficulty. Defective eyesight has been shown to be one of the factors in the large number of casualties in the freshman class. Much remains to be done earlier in the student's academic life—in elementary and high school. Then, and not when the student comes to college, is the proper time to take measures to insure that each will not be handicapped for life by poor vision.

GEORGE E. NELSON
COLLEGE OF THE CITY OF NEW YORK

A NEW TRAIT TEST

THIS is a new test for the character trait called "honesty." It is somewhat limited in its application, but within its range it probably will be found to have as high a degree of accuracy as the average test. It has the advantage of being a self-administering test and the subject is quite unaware that the test is being made. Its principal defect lies in the fact that in its application it is limited to a small group, but it measures a group not easily reached in any other way, and one whose measure is important.

In a recent issue of SCHOOL AND SOCIETY, there appeared an interesting contribution on "The Reliability of Self-scored Measures." This is an account of an attempt to test a group of individuals with respect to the character trait called "honesty." Perhaps no one would be disposed to question the data or the conclusions, but it is surprising that the investigator apparently did not perceive that he was himself being tested in this very trait.

In one paragraph he reports that, "Later in the hour it was suggested that perhaps the class would be interested in knowing what they had been able to do with the tests in comparison with William." This statement was misleading and intended to deceive the group, and did in fact do so.

This first test was followed by a check test, and the author states, "At the close of the hour the announcement was made that in order to give each member of the class an experience in scoring tests, in order to conserve the time of the writer and in order that they might know their own scores, they would be allowed to score the five-minute test they had taken at the beginning of the hour." Again the statement was misleading and deliberately intended to deceive, and in fact did deceive. This is not an unusual practice in giving tests and no criticism of the individual is intended, but an investigator who indulges in such practices is inadvertently testing himself in this trait. To one on the outside it is astonishing to observe to what extent the investigators in the field of testing resort to incomplete and misleading statements of fact when giving tests, with a deliberate purpose to deceive. They naïvely proceed to test honesty by being dishonest. Perhaps the excuse is to be found in the old adage that "It takes a thief

to catch a thief," but we know with what doubt such evidence is received.

It is rather important that we know to what extent the "trait called honesty" dominates our investigators in the fields of tests and measurements. In order to determine this I suggest that the various tests be examined, the methods of administering them inquired into, and the rating of the investigators made on the basis of the deceit practiced in securing the data.

There is a tradition in the scientific world that an investigator should be absolutely honest in handling the data, and in some quarters there is a feeling that he should be equally honest in obtaining it. Perhaps this is just a case of "non-transfer," where trickery and deceit may be practiced in obtaining data, and absolute honesty practiced in handling it; but some of us have grave doubts concerning such practices. Perhaps this notion of what constitutes honesty and integrity represents only the moral longings of a provincial mind, but we should have more faith (or less) in the conclusions, if we knew to what extent deceit is practiced in securing the data.

R. W. SELVIDGE
UNIVERSITY OF MISSOURI

QUOTATIONS

MARRIED TEACHERS IN ENGLAND

THE Lancashire education authority made a decision recently that will be welcomed by the wiser minds in the teaching profession and appreciated by most parents. They decided that in the area they control a woman teacher shall not be dismissed because she marries. The right of the married woman to do anything except tend her husband and family is slow in maturing. Even in these days when almost all the professions are open to women, as all the industries have long been, the old idea still lingers here and there that marriage is a career in itself, and that the woman who adopts it is unfitted by the fact for professional work. It is an outworn creed, disproved by the hundreds of able women doctors who tend the ills of the laity all the better because they have lives of their own begetting to cherish, and by scores of great head mistresses who discipline and inspire the children of others none the worse because they have their own to think of. That the discretion against marriage should linger longest in the teaching profession is a curious anomaly. A great teacher, like a great physician, may be born for the job, but perfection comes only through long experience. Where is the logic, where even the economy, in the view that a woman teacher who may be shaping supremely well at her work must be cut off from it before a tithe of her powers is expended because she conforms to one of the basic principles of life? Is it not more reasonable to recognize that the less cloistered, dedicated and limited the life of the teacher the more wide and understanding will be the spirit behind the teaching? That, at any rate, is the Lancashire view. It was hotly contested on the well-worn grounds that "marriage is a full-time job," and that women who have been lucky enough to find husbands should be content thenceforth to depend on them and to make room in remunerative work for their less fortunate sisters. But, happily, in this instance that view has not prevailed.—*The Manchester Guardian.*

THE MERIT SYSTEM IN THE NEW YORK CITY SCHOOLS

THERE is new reason for urging legislation in extension of the present merit system for appointments and promotions in the Department of Education. By reason of a by-law recently adopted by the Board of Education, the principalships of junior high schools, continuation schools and vocational schools have been reclassed, and as a consequence of this reclassification have become exempt from the rules under which promotion is made upon the basis of eligible lists. The result of this by-law, the enactment of which has been declared by the State Commissioner of Education to be within the authority of the Board of Education, is that the exempt group, which already includes all the other higher positions of permanent tenure, is considerably enlarged.

Commissioner Graves's decision, which is sound as to the classification of the positions named, does not touch the question of the extension of the merit system, as that was not before him in the appeal; but as to its extension to all positions of permanent tenure he has more than once favorably expressed himself. It is

through these unprotected positions that political and personal influences are liable to enter to vitiate the purpose of the merit system and disturb the morale of the teaching body. This danger is increased by the fact that the positions are among the highest—in fact the highest among all those of permanent tenure. If protection is needed below, it is certainly needed at the top. Those in the lower positions have adequate cause for complaint if others are let into the positions above them without the manifestation of superior qualifications through open, competitive tests.

The salaries of all the teachers have just been increased. An even greater increase has been made for most of those in the higher positions. But the reason which supported the latter would prove invalid if increased merit were not at the same time assured. For this reason the bill extending the merit system not only to the positions covered in last year's bill, which failed of enactment, but also to the positions newly exempted under existent law should be supported both by the teachers themselves and by all others who have an interest in the improvement of our public schools.—*The New York Times.*

REPORTS

THE CARNEGIE CORPORATION OF NEW YORK[1]

THE charter of the Carnegie Corporation calls not only for the advancement but for the diffusion of knowledge and understanding among the people of the United States. In the case of universities and of organizations, like the Institute of Economics and the Food Research Institute, it is hard to draw a distinction. However, certain of the activities of the corporation may be set apart as serving more specifically the latter function; for example, its relation to the American Library Association, its contribution to the services of the New York Academy of Medicine, its support of the Institute of International Education and of the American Association for Adult Education.

[1] From the report for 1927 of Dr. Frederick P. Keppel, president, for the year ended September 30, 1927.

In the matter of publication, the most obvious method of diffusion, the corporation has limited its activity to placing funds in hands which it believes to be competent and disinterested. In no case has it endeavored to influence directly or indirectly what has been written or published.

The publications fall into two groups, one including the books and pamphlets issued by organized agencies financed in whole or in substantial part by the corporation. Of these, mention should be made of the 6 volumes of the Educational Finance Inquiry; 26 volumes thus far published by the Institute of Economics; 6 volumes of the Food Research Institute, and the 74 volumes which have appeared in the series of the Economic and Social History of the World War, to which the corporation has contributed through the Carnegie Endowment. The publications of the American Library Association include 10 volumes; and 34 brochures have thus far been issued in the series of "Reading with a Purpose," with a total distribution of 350,000 copies. No volume has as yet been published by the American Law Institute on the "Re-Statement of the Law," but several volumes are now in the press.

The second group is more varied in character, and reflects somewhat less permanent relations with the institutions concerned. While it includes a number of solid volumes, it is represented chiefly in pamphlets, bulletins and magazine articles. It includes 600 papers and pamphlets published in 75 periodicals and treating of subjects such as atomic structure, astronomy, biology, insulin, helium, pyorrhea, legal aid, modern language teaching, engineering education, fine arts and adult education.

No attempt has been made to print a complete list of the publications of either class, partly because the list would be so long as to be tedious, and partly lest the corporation should appear to claim more than a partial and secondary share for their appearance. Suffice it to say that the product of the four-year period just closed would call not for one but for six of the traditional five-foot shelves.

EDUCATIONAL STUDIES

An interesting study might be made of the declining effectiveness of assertion as a means of influencing the thoughts and particularly the

conduct of others. In science and its applications, the demand for evidence based on observation, experiment and measurement is well established, though even here the battle is not won, as the prosperity of health cults of various kinds will bear witness. In the social sciences, the recent organization of the Social Science Research Council, to which the corporation is a contributors, is an encouraging sign of the times. Even in politics there are indications of a change, though we know to our cost that the voice of the demagogue is still potent.

Perhaps the most interesting recent advances have been made in the field of education, however, and in this field the corporation has been able to make helpful contributions. The Modern Foreign Language Study and the Engineering Education Study, both now drawing to a close, furnish good examples of what may be accomplished. While it is too early to anticipate the full results, it is safe to say that the two enterprises mark a step forward in the organization and conduct of fundamental studies of this character, and the corporation should record its high appreciation of the work done by those in responsible charge. Not the least of their achievements has been to establish a broad basis of cooperation and to develop and maintain a fine spirit of friendly team-work. All this has more than a sentimental value, for the studies were undertaken and financed for a very practical purpose, namely, to improve conditions affecting the study of hundreds of thousands of young Americans, and when placed in the hands of teachers and executives who feel that they are dealing not with *their* report, but with *our* report, the findings and recommendations are much more likely to result in actual progress.

No new study upon the scale of these two has been undertaken, though, as the list of grants (pages 25–28) will show, several interesting projects are being supported by the corporation.

Research in Science

The central bureau of the American Otological Society is now established at the New York Academy of Medicine, where competent bibliographers will complete within the next few months the collection, translation and abstraction of all the literature on otosclerosis. Hundreds of physicians scattered over the United States are contributing to the collections of autopsy material, which will be subject to microscopic study at the Otosclerosis Research Laboratory at the Johns Hopkins University.

The corporation will always be glad to be kept in touch with opportunities to help in cooperative research. Future advancement in science may depend very definitely upon progress in the technique of such research, and it may be that this may help toward the solution of academic as well as of scientific problems, by leading both to a greater mobility of scientific workers, and also to the possibility, by careful regional planning, of stimulating research not only among the members of a central university but also in the colleges in its neighborhood, through drawing men from them into the cooperative enterprise. If this could be done, there would be two results: the teaching of such men would be more vital, and the men themselves would have the satisfaction of testing their powers in friendly competition with their confrères in the universities.

To further the needs of research in single institutions endowment grants have been made as follows:

For research in the Medical School of the University of Pennsylvania	$250,000
For research in physical sciences at the California Institute of Technology	200,000

A grant of $50,000 has been made to the American Council of Learned Societies in support of a five-year program for research in the American Indian languages.

Adult Education

The corporation has carried forward its program in adult education in close cooperation with an organization to which considerable attention was given in the last report, the American Association for Adult Education. It is a source of encouragement to all who are interested that this association has made so good a start. A significant fact is that in the first year of the association's existence it has been approached by 411 separate organizations, either operating or wishing to operate within the field of adult edu-

cation, and has been the means of collecting and diffusing knowledge and helping to an understanding of the peculiar problems of continuing education. Its first annual meeting, held in Cleveland, May 16–18, was really a notable gathering.

The most substantial grant made in this field during the year was one of $50,000 to the Cleveland Conference for Educational Cooperation. Although other cities, notably Buffalo, Detroit, Chicago and St. Louis, are making progress toward what has been called a balanced ration of opportunity for adults to carry forward their education, the work in Cleveland has been outstanding. It is hoped that after the two years for which provision has been made the citizens themselves and the institutions they have created will be sufficiently interested to meet the necessary expenses of a coordinating agency. The education of adults is an activity in which it is far more important to build solidly than to build rapidly. The field is an exceedingly difficult one, and failures here and there must be expected. There is, however, no part of the long process of education where success would mean more for humanity.

In emphasizing the responsibility of the individual adult for going on with his education, we must not minimize the importance of the teacher. Up to the present, most teaching of adults in this country has been done not as a primary but as a secondary, usually an overtime, task. Whether or not this means less effective teaching than would otherwise be the case, we do not know. This indicates but one of a number of needed studies regarding the teachers of adults. Meanwhile, those responsible for their selection must do what they can without scientific guidance to avoid, in the words of Everett Dean Martin, "both the well-known type of teacher who substitutes an attractive personality for solid thinking, and the facile lecturer who undertakes to think for his audience."

FINE ARTS

In the fine arts, the corporation has continued its plan of providing scholarship help for promising young men and women who are looking forward to the career of college teachers, and of providing collections for colleges having a serious interest in the arts but lacking the facilities for effective teaching. It has also continued its grants to organizations, such as the American Institute of Architects, which are carrying forward useful programs in the arts. Four grants to institutions have been made:

To Converse College toward support of the School of Music	$25,000
To Dartmouth College for the development of the fine arts reference library	50,000
To George Peabody College for Teachers, one-half of an endowment fund of $150,000 for the fine arts department	75,000
To the Library of Congress for a chair in the fine arts	75,000

Fifty thousand dollars has been set aside for the conduct of a community arts project, to be carried on over a period of three years in an American city of moderate size still to be selected. Briefly summarized, the experiment would consist of making available to the men, women and children of the town to be chosen all the opportunities for esthetic experience which such a community could afford if it knew how to get them. The plan is to be carried out under the direction of the local chapter of the American Federation of Arts, and the grant for the purpose will be made to the federation. The Community Arts Association of Santa Barbara, which has been helped by the corporation for some years, has already taught other cities a number of useful lessons, and the results of the new experiment ought to be of at least equal significance.

SOCIETIES AND MEETINGS

THE ASSOCIATION OF AMERICAN COLLEGES

ABOUT 275 presidents, deans and professors representing colleges largely of the East, Middle West and South attended the fourteenth annual meeting of the Association of American Colleges, held January 12–14 at Chalfonte-Haddon Hall, Atlantic City. In the five sessions there were addresses on varied topics and reports on association business and surveys by a total of twenty-two formal speakers and numerous others who joined in discussions.

The outstanding feature of the meeting was the forecast by President Lowell, of Harvard,

as to the diversified development of higher education in the United States. The three forms of the future, as outlined by President Lowell at the association dinner on January 12, were as follows:

First, the independent college of the arts and pure sciences, with a four years' course and a definitely cultural interest.

Second, those colleges that, after the first two years, give to the bulk of their students mainly professional instruction with a vocational aim. These will be connected with universities and, for the most part, with those maintained by the states.

Third, universities with professional schools open, as a rule, only to graduates and with undergraduate departments or colleges whose object, like that of the independent colleges, is clearly cultural.

Each of these types will do its distinctive work; each will supply a great need; and each will fulfil in its way the object for which all exist—the educational service of our people.

President Lowell devoted his attention chiefly to the outlook for the independent American college, by which he meant the separate college "or the one that, if part of a university, is conducted as an end in itself, not as a stage in the process of professional education." He maintained that "its aim must be educational, and of a cultural rather than a vocational type." The American college will survive or perish on its educational merits. Unless the college convinces the country that "its main object is an education acquired by the personal effort of the student himself, it will pass away as an important factor in the life of our country."

Dealing with the attitude that would make the college "a social, if not an athletic organization," Dr. Lowell expressed his belief that "parents and the vocal part of the alumni" hold to such a conception more than do the students. The students "are more ready to accept any standards on which the faculty insists." Many faculties, perhaps most of them, are insisting on higher standards, and are getting them. "But the tide in many colleges must run stronger yet."

Although he did not include junior colleges in his three-fold classification of higher education of the future, President Lowell spoke favorably of the junior college movement. "It is a benefit. Many junior colleges are serving a useful purpose in their localities; they do no damage to good four-year colleges." In giving his concluding forecast Dr. Lowell said "there is need for greater diversity in American education than exists to-day and for a greater recognition of the diversity that actually exists now."

The undergraduates and the college administration was the theme of the address at the dinner of the president of the association, President Lucia R. Briggs, of Milwaukee-Downer College. Miss Briggs pointed out the need of following throughout the course the practice of conferring with students started in Freshman Week programs. "You can't handle students without knowing what they are thinking about. Student periodicals do not usually reveal true undergraduate thought. You must talk with many students to get that." Miss Briggs went on to say that student government, "although often a spoiled and obstreperous child, may be a valuable ally of the faculty and a force toward scholarship. Both students and faculty should feel that they are part of a body—the college—which is greater than either."

Foreign Aspects of Education

Conditions in China are far from settled, but there has been a distinct improvement in the educational situation in the past six months, according to the address before the association of Henry Hodgkin, secretary of the Chinese Christian Union, and a leading English Quaker, who has been in touch with China for some years. Mr. Hodgkin traced the growth of the nationalist movement which has resulted in regulations that all schools and colleges must have Chinese heads and presidents, and staffs including at least one half of Chinese teachers. Too great a concern for political matters appears to be the bane of Chinese students, Mr. Hodgkin said. He expressed his hope that, out of the present chaos, will come a solution for China and possibly a contribution toward Western education.

"The American Undergraduate Abroad" was the subject of three presentations at the afternoon session of January 13 by President W. A. Neilson, of Smith College, President Walter Hullihen, of the University of Delaware, and

Dr. Stephen P. Duggan, of the Institute of International Education. The plan of having undergraduates spend a year of study in French universities was first developed by the University of Delaware in 1923–24, and five Delaware groups have successfully carried the idea through in successive years. "Forty colleges scattered from Dartmouth in the East to the Universities of Minnesota and Montana in the West and Florida in the South" have had students participating in the Delaware plan. President Hullihen quoted opinions of students as to the great value of the year in France to them and opinions of deans and teachers as to the advantages and disadvantages of the plan.

The experiment in foreign study for juniors majoring in French at Smith College has been conducted for the past three years with very satisfactory results, President Neilson reported. This year there are 42 girls in the group. "The students do not live together but are scattered through twenty or thirty French families, where they not only have to use French constantly but have an opportunity of getting some understanding of French social life."

Director Duggan's paper, read by Archie M. Palmer, associate director of the institute, emphasized that, in general, fellowships and scholarships for study abroad should be given to graduate students. "Nevertheless the movement described by the term junior year abroad has so far won the heartiest approval of all the factors concerned in making the experiment." Dr. Duggan is in charge, in behalf of a committee of the Institute of International Education, of the award of undergraduate scholarships for study in France; applications may be addressed to him at 522 Fifth Avenue, New York City.

SCHOLASTIC APTITUDE AND ACHIEVEMENT

At the evening session of January 13, Professor Carl C. Brigham, of Princeton, read a paper "Discovering Scholastic Aptitudes"; President Murray Bartlett, of Hobart College, discussed "Encouragement of Scholastic Achievement"; and Dean Herbert E. Hawkes, of Columbia University, spoke on "Constructive Discipline."

The present psycholcgical tests, "imperfect as they are, show enormous individual differences among students supposedly at the same educational level," said Dr. Brigham. "Further refinement of tests should enable colleges to meet more exactly the needs of individual students instead of writing one general educational prescription. . . . All requirements for admission to college are based on years of study and not amount of knowledge. It is quite possible that, given a more elastic curriculum and better methods of recording progress, hundreds of students could do the work now required in eight years of high school and college in five or six years, thereby entering professional schools at the age of 19 or 20."

President Bartlett began by saying that, "having secured your student with scholastic aptitude, the problem of the college is not to make him study but to make him *want* to study. Even carefully selected students are human beings and therefore will spend most of their time on the things they want to do most." To make them want to attend to the curriculum rather than to become absorbed in "activities," President Bartlett declared that courses must be made so vital and interesting that students will see their college work as a revelation of a real world in which they can live with all their might. "Each study should be revaluated and its implications be brought out so far as they can be made to apply to the wider horizon of scientific knowledge. More faculty meetings are needed, not about what to do with our students but what to do with our courses."

Saying that "fixed rules of discipline administered arbitrarily have no place in a college," Dean Hawkes continued that "discipline should be approached from the angle of moral education of the individual rather than of his punishment." When the morale of the college community requires withdrawal, the penalty should be so imposed as to give the student not a sense of injustice but "a more enlightened sense of social responsibility."

Basis for the view of Dean Hawkes was furnished in the address on "Recent Scientific Studies of Character Education" delivered at the morning session of January 14 by Professor Mark A. May, of Yale University. "There is less deception when the relation of pupils to teacher and school system is friendly and cooperative rather than hostile and suspicious,"

said Professor May in giving a report on the Character Education Inquiry. No general sex differences were discovered in the study made of the tendencies of children to practice deception. "No general improvement is noticed as children progress through the school grades. Children with fewer advantages and lower abilities on the whole tend to cheat more than children with more advantages and greater abilities, but this is not universally true." Professor May brought out that "a child may cheat in class and never show the slightest tendency to cheat on the playground, or *vice versa*. In other words, honesty must be achieved, just as arithmetic ability is achieved, by intelligent practice in a large number of situations." The conclusions of Professor May were based on tests which he and Professor Hartshorne have made of some 12,000 children in grades IV to IX. Twenty-four separate tests were used of nine different types affording "opportunities for deception in copying answers in a school test, faking the solution of a puzzle," etc.

Elimination of Fraudulent Universities

The activities in Europe of fraudulent managers of "diploma-mills" in this country have been such as seriously to injure abroad respect for the American doctorate, said Hon. W. E. Humphrey, chairman of the Federal Trade Commission, in addressing the association on the morning of January 14. This statement was supported in the discussion which followed by Dr. David A. Robertson, assistant director of the American Council on Education. Mr. Humphrey presented examples of fraudulent universities which sell doctor's degrees for $8.50 and master's degrees for $5. Their dupes in this country and particularly in England are often clergymen, Mr. Humphrey said. In these as in the patent medicine fakes the blame for a large share of the fraud must be placed upon magazines which accept advertisements "directly aiding and abetting these swindling and crooked schools in their unclean work." Mr. Humphrey said that there has been a great reform among correspondence schools which, on their own motion, "adopted a code of ethics and procedure which has practically wiped out unfair and fraudulent practices in the correspondence school field." The association, following Mr. Humphrey's address, voted to cooperate with the Federal Trade Commission in all possible ways to check fraudulent universities.

Research in Colleges

Methods of stimulating research in colleges were outlined at the morning session of January 14 by Dr. Maynard M. Metcalf, of Johns Hopkins University. Dr. Metcalf dwelt upon the need for more of the abler college graduates in the life of research. The attractiveness of this field should be brought before promising students in their junior or senior years. For the encouragement of research by college teachers, Dr. Metcalf suggested: "(1) Let it be expected of them. (2) Teaching demands and committee work so planned as to leave reserve of energy and time for productive scholarship. (3) Salaries sufficient to free from the necessity of gainful occupation outside of regular teaching."

President Meta Glass, of Sweet Briar College, in a paper on "The College Curriculum for Women," said:

> While all colleges are using the same broad fields of knowledge for the education of women, the individual curricula in their shades of emphasis and their differences of methods are as varied as the abilities and the tastes of women and as the complex circumstances and necessities that mould their lives. For the future of American society, this is well. Let us arrive at no college curriculum for woman but hold to many curricula that we may not stale her infinite variety.

Business of the Meeting

President Briggs presided at all sessions. At the morning session of January 13, Dr. Robert L. Kelly, founder of the association and executive secretary, presented his report, showing what had been done during the year by the executive committee and by his office. He referred to two forthcoming books to be published under the auspices of the association: "The Effective College," to be made up of papers read by 25 educators at the 1926 and 1927 meetings of the association; and "The Architectural Development of Colleges and Universities," of which the authors are Herbert C. Wise and

Charles Z. Klauder. "The very fluidity of present-day educational theory and practice, coupled with the alertness of our colleges to methods of improvement affords this association the greatest opportunity it has had in its fourteen years' history. Out of this fluidity and because of this yearning for a better way will evolve—is now evolving—a new philosophy of American higher education."

The report of the treasurer of the association, President Bernard I. Bell, of St. Stephen's College, showed on hand "the very comfortable balance of $3,846."

Reports were presented by chairmen of commissions of the association as follows: Dr. Floyd W. Reeves, University of Kentucky, Commission of the Cost of College Education; Trevor Arnett, Commission on Permanent and Trust Funds; President W. W. Boyd, Commission on Academic Freedom and Academic Tenure; President Charles C. Mierow, Colorado College, Commission on College Architecture and College Instruction in Fine Arts; Dr. Charles R. Mann, American Council on Education, Commission on Educational Surveys; Dean Otis E. Randall, Brown University, Commission on Enlistment and Training of College Teachers; Dr. Adam Leroy Jones, Columbia University, Commission on College Personnel Technique.

Following the report of President Boyd, the felicitations of the Association of American University Professors were presented by Dr. A. M. Kidd, of Columbia University, and Dr. Herman V. Ames, of the University of Pennsylvania. Both testified to "the increasingly close and friendly relations throughout the country between boards and heads of institutions of higher learning and the faculties of these institutions."

Officers for 1928–29 were elected as follows:

President: Trevor Arnett, of New York City, formerly of the University of Chicago.

Vice-President: President Meta Glass, of Sweet Briar College.

Executive Secretary: Dr. Robert L. Kelly.

Treasurer: President Bernard Iddings Bell, of St. Stephen's College.

Additional Members of Executive Committee: Dean Herbert E. Hawkes, Columbia University, and President W. G. Cleppinger, Otterbein University.

Representatives American Council on Education: President A. A. Brown, University of Chattanooga; Chancellor S. P. Capen, University of Buffalo; President Guy E. Snavely, Birmingham-Southern College.

Representative National Research Council: Dean Luther P. Eisenhard, Princeton University.

Commission on Academic Freedom and Tenure: President W. W. Boyd, Western College for Women, *chairman*; Secretary Clyde Furst, Carnegie Foundation; President William Mather Lewis, Lafayette College; President R. E. Blackwell, Randolph-Macon College.

Commission on College Architecture and College Instruction in the Fine Arts: President Frederick C. Ferry, Hamilton College, *chairman*; President Frederick P. Keppel, Carnegie Corporation; President Ernest M. Hopkins, Dartmouth College; President J. H. T. Main, Grinnell College; President W. P. Few, Duke University.

Commission on College Athletics: Professor Bert Young, Indiana University, *chairman*; Dean Frank W. Nicolson, Wesleyan University; Professor M. J. Ahern, St. Joseph's College; President J. W. Provine, Mississippi College; President J. C. Acheson, Macalester College.

Commission on College Personnel Technique: President L. B. Hopkins, Wabash College, *chairman*; Dean Raymond Walters, Swarthmore College; Secretary Frances L. Knapp, Wellesley College; Registrar Adams, Stanford University; President Walter Dill Scott, Northwestern University.

Commission on the Cost of College Education: Professor F. W. Reeves, University of Kentucky, *chairman*; President J. H. Apple, Hood College; President George F. Zook, University of Akron; Dr. Arthur T. Klein, U. S. Bureau of Education; Comptroller G. C. Wintringer, Princeton University.

Commission on Educational Surveys: Director Charles R. Mann, *American Council on Education, chairman*; Professor C. H. Judd, University of Chicago; President F. L. McVey, University of Kentucky.

Commission on Enlistment and Training of College Teachers: President E. H. Wilkins, Oberlin College, *chairman*; Dean Otis E. Randall, Brown University; President James L. McConaughy, Wesleyan University; Dean M. S. Brown, New York University; Dean C. L. Raper, Syracuse University; President R. M. Hughes, Iowa State College.

Commission on Faculty and Student Scholarship: President Frank Aydelotte, Swarthmore College, *chairman*; Dean C. Mildred Thompson, Vassar College; Dean Julian Park, University of Buffalo;

President C. D. Gray, Bates College; Sister Antonia, St. Catherine's College.

Commission on Organization of the College Curriculum: President C. C. Little, University of Michigan, *chairman*; President Arthur E. Morgan, Antioch College; Dean Frances F. Bernard, Smith College; President N. W. Coleman, Reed College.

Commission on Permanent and Trust Funds: Trevor Arnett, New York City, *chairman*; Comptroller Raymond N. Ball, University of Rochester; Lloyd Steere, vice-president, University of Chicago; J. L. Jackson, treasurer, Davidson College; Dr. A. W. Anthony, trustee, Bates College.

RAYMOND WALTERS
SWARTHMORE COLLEGE

THE BOSTON MEETING OF THE DEPARTMENT OF SUPERINTENDENCE

THE meeting to be held from February 26 to March 1, under the presidency of Joseph M. Gwinn, superintendent of the San Francisco schools, will be of exceptional interest and importance. According to information supplied in the edition of the *Journal of the National Education Association* the tentative program so far as arranged is as follows:

SUNDAY, FEBRUARY 26, 4:00 P. M.

The convention will be officially opened with vesper services held simultaneously in historic Boston churches—Park Street Church, King's Chapel, St. Paul's Cathedral, Old North Church and Arlington Street Church. President Gwinn will preside at the sixth meeting, which will be held in Faneuil Hall.

MONDAY, FEBRUARY 27, 9:00 A. M.

Invocation—Dr. Samuel A. Eliot, Arlington Street Church, Boston, Mass.

Greetings—Malcolm E. Nichols, mayor of Boston.

Response—Milton Potter, superintendent of schools, Milwaukee, Wis.

The Secondary School Provides Entrance Requirements:

For Higher Education—A. Lawrence Lowell, president of Harvard University.

For Business and Industry—Alvan T. Fuller, governor of Massachusetts, Boston.

For Home—Mrs. A. H. Reeve, president of National Congress of Parents and Teachers, Philadelphia, Pa.

For Citizenship—Jeremiah E. Burke, superintendent of schools, Boston.

MONDAY, FEBRUARY 27, 2:00 P. M.

Discussion Groups

The Department will meet this afternoon in the following discussion groups:

Group 1, The Program of Education of the Adolescent Youth—Leonard V. Koos, professor of secondary education, University of Minnesota, presiding.

Group 2, Variations Found in Secondary School Curriculums—John J. Maddox, superintendent of schools, St. Louis, Mo., presiding.

Group 3, Differentiating and Expanding the Secondary School Curriculums—Thomas R. Cole, superintendent of schools, Seattle, Wash., presiding.

Group 4, Counseling and Guidance for Adolescent Boys and Girls—George N. Child, superintendent of schools, Salt Lake City, presiding.

Group 5, Curriculum Problems of the Small High School—A. T. Allen, state superintendent of schools, Raleigh, N. C., presiding.

Group 6, The Senior High School Teacher—E. B. Cauthorn, assistant superintendent of schools, Dallas, Texas, presiding.

Group 7, The Junior College—R. J. Leonard, director of school of education, Teachers College, Columbia University, presiding.

Group 8, The School and Social Agencies—Nicholas Bauer, superintendent of schools, New Orleans, La., presiding.

Group 9, Adapting Elementary Schools to Individual Differences of Pupils—R. G. Jones, superintendent of schools, Cleveland, Ohio, presiding.

Group 10, Group and Creative Activities in Education—Charles S. Meek, superintendent of schools, Toledo, Ohio, presiding.

Group 11, Better Understanding of Creative Activities: from both Administrative and Classroom Procedure (joint meeting with National Council of Primary Education and National Council of Kindergarten Supervisors and Training Teachers)—Lucy Gage, George Peabody College for Teachers, Nashville, Tenn., presiding.

Group 12, Music Education—Peter W. Dykema, professor of music education, Teachers College, Columbia University, presiding.

Group 13, Health and Physical Education—D. J. Kelly, superintendent of schools, Binghamton, N. Y., presiding.

MONDAY, FEBRUARY 27, 7:30 P. M.

The Use and Abuse of Democracy in Education—W. H. P. Faunce, president of Brown University, Providence, R. I.

The Inter-American Ideals—Thomas E. Benner, president of University of Porto Rico.

Master Film—Education in American Schools.

TUESDAY, FEBRUARY 28, 9:00 A. M.

Financing Public Education

Progressive Tendencies with Respect to Sources of School Revenues—Fletcher Harper Swift, professor of education, University of California, Berkeley.

The Equalizing Principle in State School Support—Albert S. Cook, state superintendent of schools, Baltimore, Md.

Efficiency in Expenditure of School Moneys—Fred M. Hunter, superintendent of schools, Oakland, Calif.

Reports of Committees:

Commission on the Curriculum—Edwin C. Broome, superintendent of schools, Philadelphia, Pa.

Commission on Articulation of Educational Units—Herbert S. Weet, superintendent of schools, Rochester, N. Y.

Commission on Supervision—Albert S. Cook, state superintendent of schools, Baltimore, Md.

Financing Educational Research—Randall J. Condon, superintendent of schools, Cincinnati, Ohio.

Committee on Relation of Boards of Education and Administrative Officers—E. C. Hartwell, superintendent of schools, Buffalo, N. Y.

Auditing Committee—David A. Ward, superintendent of schools, Wilmington, Del.

Executive Committee—M. G. Clark, superintendent of schools, Sioux City, Iowa.

Nomination of Officers.

TUESDAY, FEBRUARY 28, 2:00 P. M.

Administrative Units

Section 1, State Departments of Education—Ernest W. Butterfield, state commissioner of education, Concord, N. H., presiding. Topic: Making the Schools Public Schools.

Section 2, County Superintendents—Kate V. Wofford, county superintendent of schools, Laurens, S. C., presiding. Topic: Equal Opportunity for the Country Child.

Section 3, Superintendents in Cities with Population Below 10,000—Philip H. Kimball, superintendent of schools, Brunswick, Maine, presiding. Topics: Keeping the People Informed, Improvement of Teachers in Service and Adapting Courses of Study and Programs in Education to the Smaller Communities.

Section 4, Superintendents of Cities with Population 10,000 to 100,000—S. E. Weber, superintendent of schools, Charleston, W. Va., presiding. Topic: Appropriate Forms of Publicity for Promoting the Best Interests of City School Systems.

Section 5, Superintendents of Cities with Population from 100,000 to 250,000—Carroll R. Reed, superintendent of schools, Bridgeport, Conn., presiding. Topic: Supplementary Education.

Section 6, Superintendents of Cities with Population 250,000 and over—David E. Weglein, superintendent of schools, Baltimore, Md., presiding. Topic: The Improvement of Teachers in Service.

Section 7, For City Assistant and District Superintendents—F. M. Underwood, district superintendent of schools, St. Louis, Mo., presiding. Topic: The Job of the City Assistant or District Superintendent.

Section 8, Business Managers—Byron W. Hartley, superintendent of schools, Louisville, Ky., presiding. Topic: Some Administrative Problems Relating to School Supplies.

Section 9, Joint Meeting with Educational Research Association and the National Society of College Teachers of Education—Dean William Webb Kemp, school of education, University of California, presiding.

TUESDAY, FEBRUARY 28, 7:30 P. M.

Joint Meeting with the Department of Secondary School Principals

Supervision in the Secondary School

Statement of the Problem and the Viewpoint of the Principal—F. L. Bacon, president of Department of Secondary School Principals, principal of Newton High School, Newtonville, Mass.

From the Standpoint of the Superintendent—John J. Maddox, superintendent of schools, St. Louis, Mo.

From the Standpoint of the Teacher—Cornelia Adair, president of the National Education Association, teacher in Junior High School, Richmond, Va.

Should Supervision be Made Scientific?—Charles H. Judd, director of school of education, University of Chicago.

WEDNESDAY, FEBRUARY 29, 9:00 A. M.

The Profession of Educational Administration

What is the Work of the Superintendent of Schools?—W. W. Charters, professor of education, University of Chicago.

The Qualifications of the Professional Superintendent of Schools—John H. Beveridge, superintendent of schools, Omaha, Nebr.

The Relation of the Superintendent of Schools to Lay Control—E. C. Hartwell, superintendent of schools, Buffalo, N. Y.

The Professional Training of School Executives—George D. Strayer, professor of educational administration, Teachers College, Columbia University.

The Training of Superintendents of Schools While in Service—A. B. Meredith, state commissioner of education, Hartford, Conn.

Ballot boxes will be open in the Mechanics Building. Votes for Department of Superintendence officers may be deposited between 11:00 A. M. and 6:00 P. M.

WEDNESDAY, FEBRUARY 29, 2:00 P. M.

There will be no session of the Department of Superintendence. This afternoon will be reserved for allied departments and for sightseeing.

There will be a trip to historic Plymouth, where an appropriate program has been arranged by the Plymouth schools and the Town Committee. Similar trips are scheduled for Lexington and Concord.

WEDNESDAY EVENING, FEBRUARY 29

As usual, this evening will be reserved for college dinners.

THURSDAY, MARCH 1, 9:00 A. M.

The Relation of Higher Education to Public Education

The Endowed Institution of Higher Education, Its Relation to Public Education—James R. Angell, president of Yale University, New Haven, Conn.

The State University, Its Relation to Public Education—Lotus D. Coffman, president of University of Minnesota.

The Relation of the Public Schools to Higher Education—Susan M. Dorsey, superintendent of schools, Los Angeles, Calif.

Report of the Committee on Resolutions.

THURSDAY, MARCH 1, 2:00 P. M.

Education and the State—Stratton D. Brooks, president of University of Missouri, Columbia, Mo.

Education and the Nation—William M. Davidson, superintendent of schools, Pittsburgh, Pa.

Progressive Education in England—Beatrice Ensor, director of the New Education Fellowship, editor of *The New Education*, London, England.

The Debt of New England to the South and West—A. E. Winship, editor of *Journal of Education*, Boston, Mass.

Business session.

THURSDAY, MARCH 1, 7:30 P. M.

At this final session a musical program will be presented by the Boston schools. The address will be by a speaker of national prominence.

EDUCATIONAL RESEARCH AND STATISTICS

SELECTION OF COLLEGE MAJORS AS A PERSONALITY EXPRESSION

WHILE the exact reasons for college students selecting their major subjects may always remain a mystery it is possible that emotional reasons may be as significant as purely intellectual factors. The selection may be based upon a personal appeal of the instructor in charge, it may be controlled by the insistence of parents upon certain subjects, in some cases it may be prompted by desire to have an "easy" major group of studies.

Beyond these more or less trivial reasons we have the possibility that emotional factors in the form of what may be called personality make-up of the student himself may be a prominent cause in his choice of a major subject. With this hypothesis in mind we have made a brief survey of the choice of major subjects in the case of 108 Colgate University undergraduates. The major choice was studied in relation to psychological test scores on the following measures:

Intelligence—Thorndike Intelligence Test for High School Graduates.

Introversion-Extroversion Trends—The Colgate rating scale for introversion-extroversion.

All these tests were taken by the students as a routine of entering college as freshmen. It is possible that some of the scores on introversion-extroversion trends had changed slightly by time the major choice was made by the students, so our data apply to the relation between scores as a freshman and choice of a major as a sophomore.

CHEMISTRY-BIOLOGY MAJORS

There were 31 students in this group. Of the total group 17 were above the average of the campus in intelligence, while 10 were in the upper quartile.

When introversion-extroversion is considered there is a slightly more marked division, 21 of the 31 students being predominately extrovert.

The cross relations between introversion-extroversion and intelligence are shown by the following diagram:

	Below average intelligence	Above average intelligence
Above average in introversion	6	4
Above average in extroversion	8	13

The concentration, while not marked, lies in the section of high intelligence and extroversion, while only one third as many are in the high intelligence and introversion section. The significance of these ratios is accentuated when we consider that for the entire student body there is an equal number of students in each of the four sections of the diagram.

CHEMISTRY-GEOLOGY MAJORS

The concentration of the extroverted student in the chemistry-geology major group is greater than in the chemistry-biology group. There are 8 introvert against 18 extrovert. Intelligence is about uniformly distributed, there being 11 below the campus average to 15 above this average.

The cross relations between intelligence and introversion-extroversion are as below:

	Below average intelligence	Above average intelligence
Above average in introversion	3	5
Above average in extroversion	8	10

ECONOMICS-HISTORY MAJORS

There is a noticeable shift when we turn to the economics-history majors, with a ratio of 15 below campus average intelligence to 11 above this average. There is still a marked trend for extrovert preference, the ratio being 17 extrovert to 7 introvert—somewhat different from what we would have expected. The sector with least concentration is high intelligence and introversion; there are only 1/12 of the economics-history major students found here, while among the general student body one fourth are in this sector.

The sector distribution is as follows:

	Below average intelligence	Above average intelligence
Above average in introversion	7	2
Above average in extroversion	8	9

LITERATURE MAJORS

In literature major selections we find a great predominance of introverts as well as high intelligence. The condition for this major is shown by the following chart:

	Below average intelligence	Above average intelligence
Above average in introversion	3	14
Above average in extroversion	4	4

The sector in which greatest concentration occurs is for introversion and high intelligence.

What becomes of the students of below average of the campus in intelligence? Many of them do not have the chance to remain in school long enough to take the selection of a major subject seriously. Most of them, however, are scattered among other departmental majors where they undoubtedly find that a personal liking on the part of an instructor makes it expedient for them to major with him to assure receiving grades sufficiently high to count toward a major. This is not exceptional in a liberal arts college.

SUMMARY

In the case of subject groups which we have reported here introversion-extroversion seems to be as important as intelligence in the selection of a major subject, while a combination of introversion-extroversion with intelligence gives a still better differentiation of the major groupings. The data appear to indicate that the individual student's personality trends find some outlet in the college subjects in which he manifests greatest interest. It is not too far fetched we believe to suppose that in the near future our knowledge of personality outlets may be so developed that a "personality prescription" in the form of definite courses may be achieved. In the meantime, however, the data would lend support to a sound sense back of the elective and major features of high education.

J. BATEMAN YOUNG
EDWIN SHOEMAKER
COLGATE UNIVERSITY